

### REMARKS

In the office action dated December 3, 2001, the Examiner indicated that claims 1, 2, 7, 12, 14-53, 62, 67-75, 82, 83, 88, 90, 97-99, 102, 104, 106 and 108-110 are pending in the instant application. Applicants respectfully direct the Examiner's attention to the fact that claim 45 was cancelled *via* a preliminary amendment filed September 21, 2000. Accordingly, Applicants submit that claims 1, 2, 7, 12, 14-44, 46-53, 62, 67-75, 82, 83, 88, 90, 97-99, 102, 104, 106 and 108-110 are actually pending in the instant application. Claim 98 (depending from previously cancelled claims 86 and 93) has been cancelled. Non-elected claims 35, 38, 52, 53, 62, 67-75, 82, 83, 88, 90, 97, 99, 102, 104, 106 and 108-110 have also been cancelled. Claim 41 has been amended. Attached hereto is Appendix A, captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**". The attached Appendix includes a marked-up version of the change made to claim 41 by the current amendment. After entry of the instant amendment, claims 1, 2, 7, 12, 14-34, 36-37, 39-44 and 46-51 will be pending.

### ***Election/Restriction***

The Examiner has required restriction to one of the following inventions is required under 35 U.S.C. 121:

- Group I: Claims 1, 2, 7, 12, 14-34, 36, 37, 39-44, 46-50, 51 drawn to methods of making panto-compounds in microorganisms *in vivo*, classified in class 435, subclass 128;
- Group II: Claims 35, 38 drawn to methods of producing panto-compounds *in vitro* using *Bacillus* enzymes, classified in class 435, subclass 128;
- Group III: Claims 52 and 53 drawn to methods for identifying modulators of pantothenate kinase, classified in class 435, subclass 15;
- Group IV: Claims 62 and 67-75, 82, 83, 88, 90, 97, 99, 108, 109 drawn to microorganisms over expressing at least one *Bacillus* pantothenate biosynthetic enzyme, vectors and nucleic acid sequences thereof; microorganisms having a mutant *coaX* gene, vectors and nucleic acid sequences thereof; microorganisms containing *coaX* gene, vectors and nucleic acid sequences thereof; microorganisms that overproduce panto-compounds by virtue of a deregulated

pantothenate pathway and a mutation in CoA biosynthesis, classified in class 435, subclass 252.3;

Group V: Claims 102, 104, 106, and 110 drawn to pantothenate biosynthetic enzymes, classified in class 435, subclass 183.

Applicant hereby elects Group I (1, 2, 7, 12, 14-34, 36, 37, 39-44, 46-50, 51) for prosecution in the present application without traverse. Non-elected claims 35, 38, 52, 53, 62, 67-75, 82, 83, 88, 90, 97, 99, 102, 104, 106 and 108-110 have been cancelled from the application. Accordingly, claims 1, 2, 7, 12, 14-34, 36-37, 39-44 and 46-51 are currently pending.

The Examiner has further required an election of species as set forth in paragraph 4 (page 4) of the office action mailed December 3, 2001. The Examiner states that, "[f]or Group I, Claims 1, 2, 16\*, 18\*, 19, 24, 28, 48\* and 51 are generic. The '\*' indicates generic *ilv* genes." The Examiner then lists fourteen species of group I, each species corresponding to microorganisms overexpressing a different biosynthetic enzyme. Applicants elect species (d), directed to microorganisms overexpressing ketopantoate reductase (*panE*), for prosecution on the merits. Applicants submit that the claims readable upon the elected species include claims 1, 2, 7, 12, 19, 24, 26, 27, 28, 33, 34, 48, 49 and 51.

It is Applicants' understanding that upon the allowance of a generic claim, Applicants will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141.

Applicants reserve the right to pursue the claims as originally filed in this or in a separate application(s).

**SUMMARY**

If a telephone conversation with Applicants' Attorney would expedite the prosecution of the above-identified application, the examiner is urged to call Applicants' Attorney at (617) 227-7400.

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**APPENDIX A**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

In the Claims:

Claim 41 has been amended, as follows:

41. (Amended) A method of producing a panto-compound comprising culturing a pantothenate kinase mutant microorganism under conditions such that the panto-compound is produced at a significantly high yield.